



**2020 Capitalization Rate Study
Liquid Pipelines**

FINAL

Completed: April 28, 2020

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Liquid Pipelines

2020 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	11.19%	35%
Capital Asset Pricing Model - Ex Ante ^[2]	8.75%	35%
3 Stage Dividend Discount Model - Dividends ^[3]	16.00%	15%
3 Stage Dividend Discount Model - Earnings ^[3]	16.75%	15%
Weighted Average	11.89%	100%
Selected Cost of Equity	<u>11.90%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	3.36%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	3.88%	0%
Ba - MTDOR - Avg. YTM of Ba Rated Corporate Bonds ^[5]	6.58%	100%
Weighted Average	6.58%	100%
Selected Cost of Debt	<u>6.60%</u>	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	60.00%	11.90%		11.90%	7.14%
Debt	40.00%	6.60%	24.00%	5.02%	2.01%
WACC	100.00%				9.15%
WACC (Rounded)					9.20%

Notes

- [1] From worksheet: Capital Structure
- [2] From worksheet: Capital Asset Pricing Model Summary
- [3] From worksheet: Yield Equity Summary
- [4] January 2020, Mergent Bond Record
- [5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE	
Direct Capitalization Rate Conclusion	
Industry: Liquid Pipelines	
2020 Assessment Year	

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	8.50%
GCF	12.60%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.60%
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NOI After-tax Direct Capitalization Rate					
Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	8.50%		8.50%	5.10%
Debt	40.00%	4.60%	24.00%	3.50%	1.40%
Total	100.00%				6.50%
Total (Rounded)					6.50%

GCF Direct Capitalization Rate					
Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	12.60%		12.60%	7.56%
Debt	40.00%	4.60%	24.00%	3.50%	1.40%
WACC	100.00%				8.96%
Total (Rounded)					9.00%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Liquid Pipelines

2020 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Pipeline MLPs industry.

Companies were then selected using the following screening criteria:

1. Primarily engaged in the transportation, storage, and terminaling of crude oil, refined products, and liquified petroleum gas.
2. Actively traded on an American exchange.
3. Incorporated as a limited partnership.
4. Operate in the North / central regions of the West and Midwest
5. No significant merger & acquisition activity during the year.

Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
BKEP						No		
BPMP	No							
CAPL	No							
CEQP	No							
CNXM	No							
CQP	No							
DCP	No							
DKL	Yes	Yes	Yes	No				
ENBL	No							
EPD	No							
EQM	No							
ET	Yes	Yes	Yes	Yes	Yes	No		[1]
FGP	No							
GEL	No							
GLP	No							
GPP	No							
HEP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
HESM	No							
MMLP	No							
MMP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
MPLX						No		
NBLX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
NGL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
NS	Yes	Yes	Yes		Yes	Yes	Yes	
OMP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PAA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PAGP	No							
PBFX	Yes	Yes	Yes	No				
PSXP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
RTL	Yes	Yes	Yes	No				

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies**Industry: Liquid Pipelines****2020 Assessment Year**

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Pipeline MLPs industry.

Companies were then selected using the following screening criteria:

1. Primarily engaged in the transportation, storage, and terminaling of crude oil, refined products, and liquified petroleum gas.
2. Actively traded on an American exchange.
3. Incorporated as a limited partnership.
4. Operate in the North / central regions of the West and Midwest
5. No significant merger & acquisition activity during the year.

Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
SHLX	Yes	Yes	Yes	No				
SMLP	No							
SPH	No							
SRLP	No							
TCP	No							
TGE	No					No		
WES						No		

[1] On December 5, 2019, Energy Transfer LP (ET) and SemGroup Corporation (SEMG) completed their previously announced merger

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Liquid Pipelines

2020 Assessment Year

(\$ and Shares Outstanding In Thousands, Except Per Share Amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker Symbol	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
		Value Line	Value Line	10-K	Yahoo	ExF	10-K	10-K	10-K	G+H+I+J	G/K	H/K	(I+J)/K
							Note [1]	Note [2]					
HEP	Holly Energy Part.	PIPEMLP	B	105,440	22.15	2,335,500	0	1,558,020	3,608	3,897,128	60%	0%	40%
MMP	Magellan Midstream	PIPEMLP	B++	227,788	62.87	14,321,006	0	5,192,685	170,244	19,683,935	73%	0%	27%
NBLX	Noble Midstream Partners LP	PIPEMLP	B	90,240	26.56	2,396,765	0	1,495,679	2,730	3,895,174	62%	0%	38%
NGL	NGL Energy Partners LP	PIPEMLP	C++	124,508	11.34	1,411,926	0	2,160,781	365,437	3,938,145	36%	0%	64%
NS	NuStar Energy L.P.	PIPEMLP	B+	108,528	25.85	2,805,444	581,935	3,442,001	80,499	6,909,879	41%	8%	51%
OMP	Oasis Midstream Partners LP	PIPEMLP	B	20,045	16.59	332,550	0	458,500	5,221	796,271	42%	0%	58%
PAA	Plains All Amer. Pipe.	PIPEMLP	B+	728,029	18.39	13,388,445	2,292,000	9,991,000	481,000	26,152,445	51%	9%	40%
PSXP	Phillips 66 Partners	PIPEMLP	B++	228,300	61.64	14,072,386	746,000	3,725,000	44	18,543,430	76%	4%	20%
All Companies						51,064,022	3,619,935	28,023,666	1,108,783	83,816,406	61%	4%	35%
Average											55%	3%	42%
Median											56%	0%	40%
Trimmed Average											55%	2%	43%
High											76%	9%	64%
Low											36%	0%	20%
Selected											60%		40%

Notes

[1] Market value of preferred stock assumed to equal book value

[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

2020 - Added HEP, NBLX, NGL, OMP

2020 - Removed ANDX no longer public

2020 - Removed BPL no longer public

2020 - Removed EPD due to majority of operations in natural gas

TY 2020 Median 56% 0% 40%

TY 2019 Median 65% 0% 35%

TY 2018 Median 70% 0% 30%

3YR AVG 64% 0% 35%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Liquid Pipelines

2020 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	11.19%	8.75%
$R_f =$	Risk Free Rate	2.25%	2.25%
$\beta =$	Beta	1.25	1.25
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.15%	5.20%
$R_m =$	Market Rate of Return	9.40%	7.45%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

January 3, 2020 Page 1325

Selected Yields on Taxable U.S. Treasury Securities as of 12/24/19

10-year	1.90%
30-year	2.33%

Federal Reserve Statistical Release^[2] and U.S. Department of the Treasury, Daily Treasury Yield Curve Rates^[3]

U.S. government securities, Treasury constant maturities, Nominal, December 31, 2019

10-year	1.92%
20-year	2.25%
30-year	2.39%

Risk Free Rate Selected

2.25%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 3, 2020)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

[3] <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Duff & Phelps, 2020 Cost of Capital Navigator

		R_m ^[4]	R_m	R_f	ERP
ERP "Historical" - <i>Ex Post</i>	Arithmetic Avg.	9.40%	9.40%	2.25%	7.15%
ERP "Supply-side" - <i>Ex Post</i>	Arithmetic Avg.	8.42%	8.42%	2.25%	6.17%
Ex Post Equity Risk Premium Selected		9.40%		2.25%	7.15%

Ex Ante - Equity Risk Premium Measures ($ERP = R_m - R_f$)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	R_m ^[4]	R_m	R_f	ERP
ERP - <i>Ex Ante</i>	7.35%	7.35%	2.25%	5.10%

Duff & Phelps, 2020 Cost of Capital Navigator

	R_m ^[4]	R_m	R_f	ERP
ERP "Conditional" - <i>Ex Ante</i>		8.00%	3.00%	5.00%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)
Industry: Liquid Pipelines
2020 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Damodaran Implied ERP (Jan 8, 2020)

	<u>R_m</u> ^[4]	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>	7.45%	7.12%	1.92%	5.20%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>	7.31%	6.98%	1.92%	5.06%

	<u>R_m</u> ^[4]	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	7.37%	7.36%		5.09%
<u>Median</u>	7.35%	7.24%		5.08%
<u>High</u>	7.45%	8.00%		5.20%
<u>Low</u>	7.31%	6.98%		5.00%

Equity Risk Premium Selected

7.45%	2.25%	5.20%
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Notes

[4] R_m estimated using selected Risk Free Rate (R_f)

MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM

Industry: Liquid Pipelines

2020 Assessment Year

A	B	C	D	E
Ticker Symbol	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
HEP	Holly Energy Part.	PIPEMLP	B	1.00
MMP	Magellan Midstream	PIPEMLP	B++	1.05
NBLX	Noble Midstream Partners LP	PIPEMLP	B	1.35
NGL	NGL Energy Partners LP	PIPEMLP	C++	1.55
NS	NuStar Energy L.P.	PIPEMLP	B+	1.50
OMP	Oasis Midstream Partners LP	PIPEMLP	B	1.15
PAA	Plains All Amer. Pipe.	PIPEMLP	B+	1.45
PSXP	Phillips 66 Partners	PIPEMLP	B++	0.95
Average				1.25
Median				1.25
Trimmed Average				1.25
High				1.55
Low				0.95
Selected				1.25

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth Industry: Liquid Pipelines 2020 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.19%	2.14%	4.33%		
Survey of Professional Forecasters ^[2]	2.23%	2.03%	4.26%		
Congressional Budget Office ^[3]	2.40%	2.20%	4.60%		
Average	2.27%	2.12%	4.40%		
Median	2.23%	2.14%	4.37%		
High	2.40%	2.20%	4.60%		
Low	2.19%	2.03%	4.22%		
Selected	2.20%	2.20%	4.40%	4.22%	4.60%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2007	210.036		1.2235	207.342		1.2330
2008	210.228	0.1%	1.2224	215.303	3.7%	1.1874
2009	215.949	2.6%	1.1900	214.537	-0.4%	1.1917
2010	219.179	1.5%	1.1724	218.056	1.6%	1.1724
2011	225.672	2.9%	1.1387	224.939	3.1%	1.1366
2012	229.601	1.7%	1.1192	229.594	2.0%	1.1135
2013	233.049	1.5%	1.1027	232.957	1.4%	1.0974
2014	234.812	0.8%	1.0944	236.736	1.6%	1.0799
2015	236.525	0.7%	1.0865	237.017	0.1%	1.0786
2016	241.432	2.0%	1.0644	240.007	1.2%	1.0652
2017	246.524	2.1%	1.0424	245.120	2.1%	1.0430
2018	251.233	1.9%	1.0229	251.107	2.4%	1.0181
2019	256.974	2.2%	1.0000	255.657	1.8%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 13, 2019 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 14, 2020 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2020/survq120>

[3] Congressional Budget Office, The Budget and Economic Outlook: 2020 to 2030, Table 2-1

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202001.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Liquid Pipelines

2020 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2019 Year End Stock Price	2020 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
HEP	Holly Energy Part.	22.15	2.73	12.33%	2.29%	4.33%	14.61%	16.66%
MMP	Magellan Midstream	62.87	4.16	6.62%	8.91%	7.34%	15.52%	13.95%
NBLX	Noble Midstream Partners LP	26.56						
NGL	NGL Energy Partners LP	11.34						
NS	NuStar Energy L.P.	25.85	2.40	9.28%	8.78%	9.93%	18.07%	19.21%
OMP	Oasis Midstream Partners LP	16.59						
PAA	Plains All Amer. Pipe.	18.39	1.44	7.83%	15.20%	9.35%	23.03%	17.18%
PSXP	Phillips 66 Partners	61.64	3.60	5.84%	10.86%	8.35%	16.70%	14.19%
Average							17.59%	16.24%
Median							16.70%	16.66%
Trimmed Average							16.76%	16.01%
High							23.03%	19.21%
Low							14.61%	13.95%
Selected							16.75%	16.00%

Notes:

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Liquid Pipelines

2020 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2020 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2023-2025 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
HEP	Holly Energy Part.	22.15	2.73	12.33%	2.94	1.87%
MMP	Magellan Midstream	62.87	4.16	6.62%	6.25	10.71%
NBLX	Noble Midstream Partners LP	26.56	0.00	0.00%		
NGL	NGL Energy Partners LP	11.34	0.00	0.00%		
NS	NuStar Energy L.P.	25.85	2.40	9.28%	3.50	9.89%
OMP	Oasis Midstream Partners LP	16.59	0.00	0.00%		
PAA	Plains All Amer. Pipe.	18.39	1.44	7.83%	2.80	18.09%
PSXP	Phillips 66 Partners	61.64	3.60	5.84%	6.00	13.62%

A	B	C	D	E
Ticker	Company	Earnings per share 2020 Est	Earnings per share 2023-2025 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
HEP	Holly Energy Part.	1.90	2.25	4.32%
MMP	Magellan Midstream	4.60	6.40	8.61%
NBLX	Noble Midstream Partners LP	0.00	0.00	
NGL	NGL Energy Partners LP	0.00	0.00	
NS	NuStar Energy L.P.	1.50	2.30	11.28%
OMP	Oasis Midstream Partners LP	0.00	0.00	
PAA	Plains All Amer. Pipe.	1.85	2.80	10.92%
PSXP	Phillips 66 Partners	4.40	6.50	10.25%

Notes

[1] 5 year compound annual growth rate (CAGR) - 4 periods

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Liquid Pipelines

2020 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
HEP	Holly Energy Part.	22.15	1.87%	4.40%	12.33%	14.61%	2.29%	(22.15)	2.73	2.78	2.83	2.89	2.94
MMP	Magellan Midstream	62.87	10.71%	4.40%	6.62%	15.52%	8.91%	(62.87)	4.16	4.61	5.10	5.65	6.25
NBLX	Noble Midstream Partners LP	26.56	0.00%	4.40%	0.00%			(26.56)	0.00	0.00	0.00	0.00	0.00
NGL	NGL Energy Partners LP	11.34	0.00%	4.40%	0.00%			(11.34)	0.00	0.00	0.00	0.00	0.00
NS	NuStar Energy L.P.	25.85	9.89%	4.40%	9.28%	18.07%	8.78%	(25.85)	2.40	2.64	2.90	3.18	3.50
OMP	Oasis Midstream Partners LP	16.59	0.00%	4.40%	0.00%			(16.59)	0.00	0.00	0.00	0.00	0.00
PAA	Plains All Amer. Pipe.	18.39	18.09%	4.40%	7.83%	23.03%	15.20%	(18.39)	1.44	1.70	2.01	2.37	2.80
PSXP	Phillips 66 Partners	61.64	13.62%	4.40%	5.84%	16.70%	10.86%	(61.64)	3.60	4.09	4.65	5.28	6.00

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
HEP	Holly Energy Part.	22.15	4.32%	4.40%	12.33%	16.66%	4.33%	(22.15)	2.73	2.85	2.97	3.10	3.23
MMP	Magellan Midstream	62.87	8.61%	4.40%	6.62%	13.95%	7.34%	(62.87)	4.16	4.52	4.91	5.33	5.79
NBLX	Noble Midstream Partners LP	26.56	0.00%	4.40%	0.00%			(26.56)	0.00	0.00	0.00	0.00	0.00
NGL	NGL Energy Partners LP	11.34	0.00%	4.40%	0.00%			(11.34)	0.00	0.00	0.00	0.00	0.00
NS	NuStar Energy L.P.	25.85	11.28%	4.40%	9.28%	19.21%	9.93%	(25.85)	2.40	2.67	2.97	3.31	3.68
OMP	Oasis Midstream Partners LP	16.59	0.00%	4.40%	0.00%			(16.59)	0.00	0.00	0.00	0.00	0.00
PAA	Plains All Amer. Pipe.	18.39	10.92%	4.40%	7.83%	17.18%	9.35%	(18.39)	1.44	1.60	1.77	1.96	2.18
PSXP	Phillips 66 Partners	61.64	10.25%	4.40%	5.84%	14.19%	8.35%	(61.64)	3.60	3.97	4.38	4.82	5.32

Notes:

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Liquid Pipelines

2020 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
HEP	3.00	3.06	3.12	3.19	3.25	3.32	3.39	3.46	3.53	3.60	3.67	3.75	3.82	3.90	3.98	4.15	4.34	3,767,527,448
MMP	6.89	7.60	8.39	9.25	10.20	11.25	12.41	13.68	15.09	16.65	18.36	20.25	22.33	24.63	27.17	28.36	29.61	25,719,354,684
NBLX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
NGL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
NS	3.83	4.20	4.60	5.04	5.52	6.04	6.62	7.25	7.94	8.69	9.52	10.43	11.42	12.51	13.70	14.31	14.93	12,972,734,105
OMP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
PAA	3.28	3.84	4.50	5.28	6.18	7.25	8.49	9.95	11.66	13.66	16.01	18.76	21.98	25.75	30.17	31.50	32.89	28,566,081,074
PSXP	6.78	7.66	8.66	9.79	11.06	12.50	14.12	15.96	18.03	20.38	23.03	26.03	29.41	33.24	37.56	39.21	40.94	35,561,405,597

Earnings	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
HEP	3.37	3.52	3.67	3.83	3.99	4.17	4.35	4.54	4.73	4.94	5.15	5.37	5.60	5.85	6.10	6.37	6.65	5,774,744,307
MMP	6.27	6.79	7.36	7.97	8.63	9.35	10.13	10.97	11.89	12.88	13.95	15.11	16.37	17.73	19.21	20.05	20.94	18,186,347,218
NBLX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
NGL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
NS	4.08	4.52	5.01	5.55	6.15	6.82	7.55	8.37	9.28	10.28	11.39	12.63	13.99	15.50	17.18	17.94	18.73	16,267,681,594
OMP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
PAA	2.41	2.66	2.94	3.25	3.59	3.96	4.38	4.84	5.35	5.91	6.52	7.21	7.96	8.80	9.72	10.15	10.60	9,203,878,674
PSXP	5.84	6.42	7.05	7.75	8.51	9.35	10.27	11.28	12.39	13.62	14.96	16.43	18.05	19.83	21.79	22.74	23.74	20,625,657,434

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Liquid Pipelines

2020 Assessment Year

A	B	C	D	E	F
Ticker Symbol	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Numeric Rating
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
HEP	Holly Energy Part.	PIPEMLP	B	Ba2	12
MMP	Magellan Midstream	PIPEMLP	B++	Baa1	8
NBLX	Noble Midstream Partners LP	PIPEMLP	B		
NGL	NGL Energy Partners LP	PIPEMLP	C++	B1	14
NS	NuStar Energy L.P.	PIPEMLP	B+	Ba2	12
OMP	Oasis Midstream Partners LP	PIPEMLP	B		
PAA	Plains All Amer. Pipe.	PIPEMLP	B+	Ba1	11
PSXP	Phillips 66 Partners	PIPEMLP	B++		
Average					11
Median					12
Trimmed Average					12
High					14
Low					8
Selected				Ba1	11

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Liquid Pipelines

2020 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
		End of Year Closing Stock Price					Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)					Ke Estimate - Cash Flow (Hist. P/CF)	Ke Estimate - Cash Flow (Est. P/CF)				
Ticker	Company		VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio			VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio			Market Value of Equity	Book Value of Equity	MTBR	
		Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	10-K	P/Q	
HEP	Holly Energy Part.	22.15	1.80	1.90	12.31	11.66	8.13%	8.58%	2.63	2.70	8.42	8.20	11.87%	12.19%	2,335,500	487,758	4.79	
MMP	Magellan Midstream	62.87	4.46	4.60	14.10	13.67	7.09%	7.32%	7.01	5.55	8.97	11.33	11.15%	8.83%	14,321,006	2,643,434	5.42	
NBLX	Noble Midstream Partners LP	26.56	3.09	0.00	8.60		11.63%		2.70	0.00	9.84		10.17%		2,396,765	1,154,856	2.08	
NGL	NGL Energy Partners LP	11.34	(0.67)	0.00	(16.93)				1.48	0.00	7.66		13.05%		1,411,926	2,277,818	0.62	
NS	NuStar Energy L.P.	25.85	0.87	1.50	29.71	17.23	3.37%	5.80%	3.40	4.40	7.60	5.88	13.15%	17.02%	2,805,444	1,776,210	1.58	
OMP	Oasis Midstream Partners LP	16.59	3.41	0.00	4.87		20.55%		2.32	0.00	7.15		13.98%		332,550	604,628	0.55	
PAA	Plains All Amer. Pipe.	18.39	2.64	1.85	6.97	9.94	14.36%	10.06%	3.77	3.50	4.88	5.25	20.50%	19.03%	13,388,445	13,195,000	1.01	
PSXP	Phillips 66 Partners	61.64	4.28	4.40	14.40	14.01	6.94%	7.14%	6.92	4.60	8.91	13.40	11.23%	7.46%	14,072,386	2,834,000	4.97	
Average					9.25	13.30	10.30%	7.78%						7.93	8.81	13.14%	12.91%	2.63
Median					10.45	13.67	8.13%	7.32%						8.04	8.20	12.46%	12.19%	1.83
Trimmed Average					10.21	13.11	9.63%	7.68%						8.12	8.47	12.41%	12.68%	2.51
High					29.71	17.23	20.55%	10.06%						9.84	13.40	20.50%	19.03%	5.42
Low					(16.93)	9.94	3.37%	5.80%						4.88	5.25	10.17%	7.46%	0.55
Selected							8.50%							12.60%				2.50

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Liquid Pipelines

2020 Assessment Year

(\$ in Thousands)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	YE 2019 Interest Exp.	YE 2018 MV LT Debt	YE 2018 BV LT Debt	YE 2019 MV LT Debt	YE 2019 BV LT Debt	2019 Avg MV LT Debt	2019 Current Yield	MTBR
		10-K	10-K	10-K	10-K	10-K	(D+F)/2	(C/H)	(F/G)
HEP	Holly Energy Part.	76,823	1,412,177	1,420,703	1,558,020	1,535,730	1,485,099	5.17%	1.01
MMP	Magellan Midstream	221,123	4,224,373	4,270,869	5,192,685	4,706,075	4,708,529	4.70%	1.10
NBLX	Noble Midstream Partners LP	16,236	559,021	559,021	1,495,679	1,495,679	1,027,350	1.58%	1.00
NGL	NGL Energy Partners LP	164,726	2,680,386	2,680,386	2,160,781	2,160,781	2,420,584	6.81%	1.00
NS	NuStar Energy L.P.	183,070	3,056,704	3,111,996	3,442,001	3,387,285	3,249,353	5.63%	1.02
OMP	Oasis Midstream Partners LP	17,538	318,000	318,000	458,500	458,500	388,250	4.52%	1.00
PAA	Plains All Amer. Pipe.	425,000	8,809,000	9,209,000	9,991,000	9,691,000	9,400,000	4.52%	1.03
PSXP	Phillips 66 Partners	108,000	2,860,000	3,048,000	3,725,000	3,516,000	3,292,500	3.28%	1.06
	All Companies	1,212,516			28,023,666	26,951,050	25,971,664	4.67%	1.04
Average								4.53%	1.03
Median								4.61%	1.02
Trimmed Average								4.64%	1.02
High								6.81%	1.10
Low								1.58%	1.00
Selected								4.60%	1.02

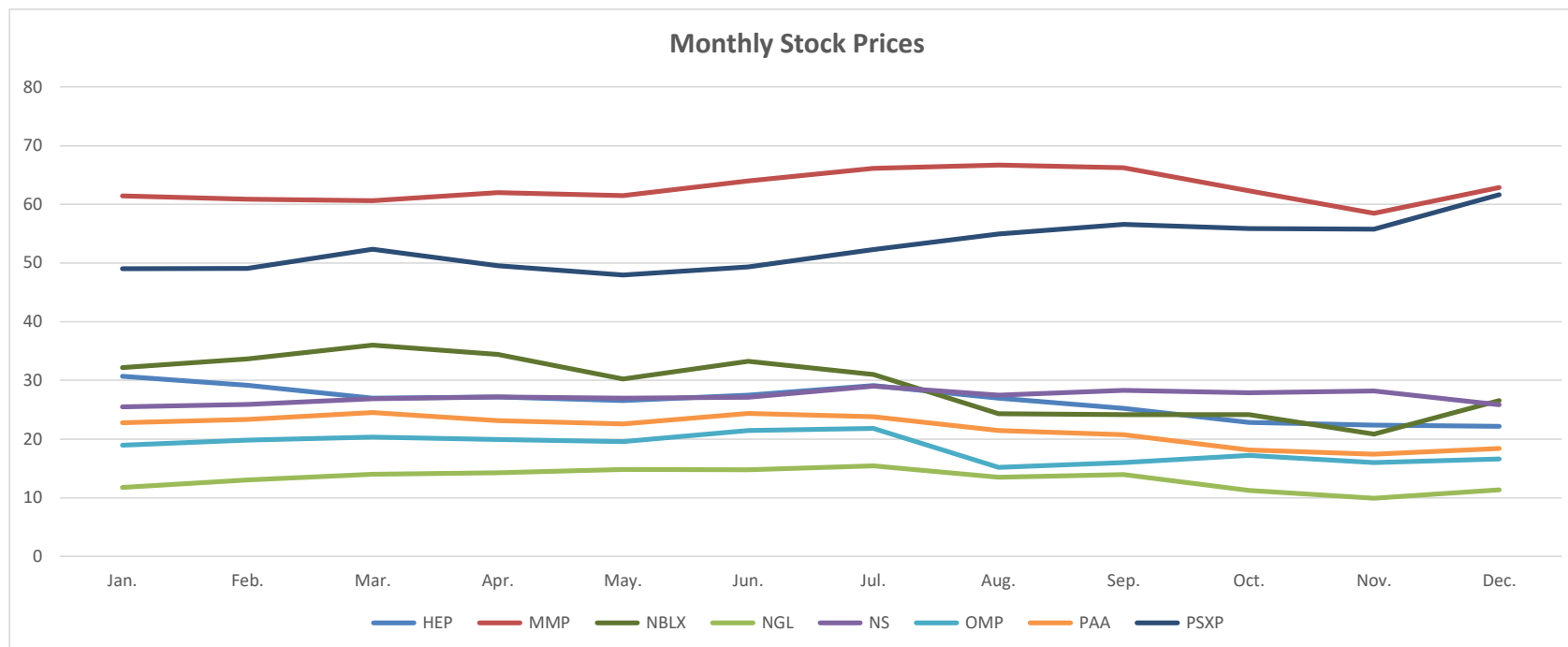
MONTANA DEPARTMENT OF REVENUE

Support of Stock Price - From YAHOO Finance

Industry: Liquid Pipelines

2020 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
HEP	Holly Energy Part.	30.68	29.17	26.99	27.19	26.59	27.5	29.12	26.95	25.27	22.85	22.36	22.15
MMP	Magellan Midstream	61.45	60.87	60.63	62.01	61.5	64	66.14	66.68	66.27	62.32	58.47	62.87
NBLX	Noble Midstream Partners LP	32.2	33.66	36.01	34.43	30.25	33.26	30.99	24.33	24.12	24.12	20.85	26.56
NGL	NGL Energy Partners LP	11.75	13.04	14.03	14.26	14.84	14.77	15.44	13.49	13.91	11.25	9.93	11.34
NS	NuStar Energy L.P.	25.49	25.91	26.89	27.19	26.96	27.14	29	27.48	28.32	27.86	28.22	25.85
OMP	Oasis Midstream Partners LP	18.94	19.81	20.32	19.93	19.6	21.5	21.83	15.17	15.97	17.24	16	16.59
PAA	Plains All Amer. Pipe.	22.77	23.34	24.51	23.15	22.61	24.35	23.78	21.43	20.75	18.13	17.4	18.39
PSXP	Phillips 66 Partners	49.02	49.06	52.35	49.53	47.98	49.35	52.26	54.97	56.62	55.89	55.73	61.64



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies Industry: Liquid Pipelines 2020 Assessment Year

(\$ In Thousands)

1	2		3	4	5	6	7	8	9	10	11
A	B	C	D	E	F	G	H	I	J	K	L
Ticker	Company	Inflation	PP&E, Gross	PP&E, Gross	Average PP&E	Depreciation Expense	Average Life of Assets			Replacement Cost (RC)	RC as % of Depreciation
			Current Year	Previous Year				Note [1]	Note [1]	Note [1]	
		MTDOR (CPI)	10-K, Notes	10-K, Notes	(D+E)/2	10-K (CF)	F/G	C*H	1/(1+C)^H	G*/(1-J)	K/G
HEP	Holly Energy Part.	2.20%	2,061,554	2,069,706	2,065,630	96,705	21	0.47	0.63	122,241	126.41%
MMP	Magellan Midstream	2.20%	8,431,227	7,628,592	8,029,910	246,134	33	0.72	0.49	347,525	141.19%
NBLX	Noble Midstream Partners LP	2.20%	2,006,995	1,752,122	1,879,559	96,981	19	0.43	0.66	120,168	123.91%
NGL	NGL Energy Partners LP	2.20%	2,264,855	1,861,952	2,063,404	227,694	9	0.20	0.82	253,633	111.39%
NS	NuStar Energy L.P.	2.20%	6,187,144	5,627,805	5,907,475	281,460	21	0.46	0.63	354,457	125.94%
OMP	Oasis Midstream Partners LP	2.20%	1,155,503	942,578	1,049,041	36,358	29	0.63	0.53	49,496	136.13%
PAA	Plains All Amer. Pipe.	2.20%	18,948,000	17,866,000	18,407,000	601,000	31	0.67	0.51	832,391	138.50%
PSXP	Phillips 66 Partners	2.20%	4,408,000	3,995,000	4,201,500	120,000	35	0.77	0.47	173,345	144.45%
Average											130.99%
Median											131.27%
High											144.45%
Low											111.39%
Selected											131.00%

Notes

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.